

Knowledge of Pharmacy Department Students Poltekkes Kemenkes Medan About Vaccination Covid-19

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Abstract

Corona Disease 19 is a coronavirus infectious disease with a high rate of transmission that primarily affects the respiratory tract. As a result, the Indonesian government established the COVID-19 immunization campaign in order to break the chain of transmission of the COVID-19 virus. Many are still afraid to get the COVID-19 vaccination due to the spread of information concerning harmful post-immunization occurrences. The goal of this study was to describe the level of student understanding regarding the COVID-19 immunization at the Pharmacy Department of the Medan Ministry of Health's Health Polytechnic. This is a descriptive survey that use the purposive sampling approach. The total population is 261 people, and the sample size is 158 people. A questionnaire that had already been validated was distributed using the Google Form in order to collect the data. The findings revealed that the average knowledge of vaccination fundamentals (72.6%), vaccine kinds (75.44%), and requirements and stages of the COVID-19 immunization (74.94%) was in a category of reasonable quality. Even though the level of knowledge about the purpose of vaccination is in the good category (91.89%). In generally, the description of the level of student knowledge about the COVID-19 vaccination at the Pharmaceutical Department of the Medan Ministry of Health Polytechnic is in the good category (78.98%). It is expected that even this factual information will inform and encourage the public to take part in COVID-19 immunization campaigns.

Keyword: Covid-19, Immunization, Knowledge, Pharmacy, Student

INTRODUCTION

Coronavirus disease (Covid-19) is an infectious disease caused by a coronavirus that causes pneumonia and lung failure in patients (Fatoni, 2021). Beginning in 2020, the globe was horrified by the emergence of a novel coronavirus (SARS-CoV-2) that caused the Coronavirus illness 2019 pandemic (COVID-19). It is known that this virus originated in Wuhan, China (Taufik et al. 2022). This disease is spread by positive Covid-19 patients through droplets released after coughing and sneezing (Han, 2020). COVID-19 has emerged as a global hazard more than two years after the WHO declared it. On of April 20, 2022, there were 50.4 million confirmed COVID-19 cases, including 6.2 million deaths (WHO, 2022). With Presidential Order No. 11 of 2020, Indonesia declared a health emergency in response to the COVID-19 outbreak (Gandryani & Hadi, 2021). In Indonesia, the number of illnesses reached 5,630,096 people dispersed throughout 34 regions, with a fatality rate of 149,036 on March 2nd, 2022 (Kemenkes RI, 2022). North Sumatra, specifically Medan City,

is one of the provinces in Indonesia that has been exposed to the COVID-19 virus, with a total of 67,508 cases and a death rate of 948 persons on March 1st, 2022 (Pemko Medan, 2022).

Several efforts, strategies, and policies have been made by the government to prevent and reduce the spread of this COVID-19 disease. Strategic and regulatory efforts carried out by the government include large- and micro-scale social restrictions and the socialization of health protocols (Puteri et al. 2022; Triyo et al. 2021). One of the efforts made in Indonesia to overcome this pandemic is through the vaccination program. The government, through the Minister of Health, stated that it had distributed 1.2 doses of the COVID-19 vaccine to 34 provinces throughout Indonesia as of January 2021. Meanwhile, the implementation of the vaccination is planned to be carried out in the second week of January 2021, after an emergency use authorization has been issued by the Oversight Agency for Drugs and Food (POM).

Vaccination, which was originally everyone's right, can become an obligation considering the current emergency situation in Indonesia (Gandryani, 2021). Vaccination against COVID-19 during a pandemic is a "public goods" effort carried out by the government as a mandatory matter (Obligatory Public Health Functions). Therefore, all vaccination costs must be fully borne by the government. To accelerate the reduction of the pandemic, an immunization coverage of 70% is needed so that 'herd immunity' is immediately achieved in less than 1 year. Vaccination services are carried out through government or private health facilities that have been appointed and meet standards (Gurning et al. 2021).

It is known that the Indonesian government has carried out the first and second phases of the COVID-19 vaccination using the Sinovac vaccine, which has gone through several stages of clinical trials and received a distribution permit from the Food and Drug Supervisory Agency (BPOM) and from the Indonesian Ulema Council (MUI). Even so, there are still some people who refuse to be vaccinated, making it difficult to implement vaccination programs in various regions (Puteri et al. 2022). One of the factors hindering the implementation of the COVID-19 vaccination is public doubts about the vaccine's effectiveness. However, when the government collaborated with several stakeholders, the implementation of the COVID-19 vaccination policy began to run smoothly, so that the implementation of the COVID-19 vaccination policy had a significant impact on the government and society (Puteri et al. 2022).

The results of previous research using a qualitative approach show that the implementation of the COVID-19 vaccination policy has not run optimally in Banda Aceh City. One of the reasons for the not-yet-optimal vaccination includes low public participation, exposure to hoaxes, limited Covid-19 vaccination officers, insufficient incentives for Covid-19 vaccination officers, faulty doses of Covid-19 vaccination, doubts about vaccines, problematic applications and networks, and Covid-19 vaccination services that are not in accordance with the SOP (Almanzani, 2022). In addition, the public also questions the efficacy and effectiveness of the COVID-19 vaccine on the pretext of ineffectiveness, conspiratorial issues, and side effects, including the halal aspect (Gandrani, 2021). Community service activities carried out in Pakistaji Village, Kabat District, Banyuwangi Regency, showed that the average knowledge of the target community was 44.85 percent (pretest). After education, the average knowledge increased to 78.68. Increasing knowledge about the importance of COVID-19 vaccination is one of the bases for increasing community commitment to take part in the success of COVID-19 vaccination activities (Faulin, 2021). According to earlier studies, about 81.1% of the 37 participants agreed to receive the COVID-19 vaccine because they thought it would be beneficial. While 18.9% of people refused to get immunized. Some individuals don't believe in getting vaccinated because there are problems with vaccines. The Dukuh Menanggal population declined to take part in the immunization due to a variety of reasons, including fear of vaccine side effects (54.8%), skepticism about the vaccine's efficacy (21.6%), uncertainty about safety (16.2%), and denial of COVID-19 (5.4%). Residents' dread of the COVID-19 vaccine's negative effects makes up the majority of these varied factors (Febriyanti, 2021).

A good knowledge of the COVID-19 vaccination can make people not afraid to take the vaccination. Therefore, a study was conducted to find out how to describe the level of student knowledge about the COVID-19 vaccination at the Pharmacy Department of the Medan Ministry of Health Polytechnic. As a health student who has a role in achieving the target of herd immunity, he must have good knowledge of the COVID-19 vaccination so that he can invite his family, friends, and the surrounding community to take part in the COVID-19 vaccination so that the target of achieving herd immunity can be realized immediately.

METHODS

The research method utilized was observational, with a descriptive survey design. The research was carried out at the Department of Pharmacy of the Ministry of Health's Medan

Polytechnic, Jl. Airlangga No. 20 Medan. This study was approved by the Health Research Ethics Commission for the Medan Ministry of Health's Health Polytechnic with the following number: 01.0401/KEPK/POLTEKKES KEMENKES MEDAN 2022.

The study's population consisted of 261 active students from the Pharmacy Department of the Medan Polytechnic of Health (levels I–II). Purposive sampling was used to collect samples. Students from the Pharmacy Department of the Medan Polytechnic of the Ministry of Health who met the inclusion criteria comprised the sample in this study. Inclusion criteria were students majoring in pharmacy at Poltekkes Kemenkes Medan levels 1 and 2, students who had been vaccinated against COVID-19, students who were willing to become respondents, and students who filled out the questionnaire link between April-May, 2022. The number of samples in this study was determined by the Slovin formula and included as many as 158 respondents.

The data obtained directly from respondents through the distribution of Google forms by researchers, and secondary data obtained from the Department of Pharmacy in Poltekkes and the Ministry of Health in Medan. The questionnaire was compiled based on the literature obtained and then made into a statement that was tested for validity and reliability using SPSS and the Pearson correlation method. Thirty respondents were subjected to a validity test. Thus, only 20 of the 43 statements verified for validity are valid and can be used as a questionnaire. Statements that meet the validity and reliability requirements are then used as a questionnaire in this study. The questionnaire assessed knowledge of vaccination, its purpose, type of vaccine, criteria, and stages of the COVID-19 vaccination.

The questionnaire contains several statements that are measured using the Guttman scale. Assessment is given with a score of 1 (one) for the correct answer and a score of 0 (zero) for the wrong answer. The number of questions for each sub-variable measured is 5, so the highest score is 5. The scoring for drawing conclusions is determined by comparing the scores achieved per maximum score. Good knowledge category if the answers are 76–100% correct, good enough (56-75%), not good (40–55%), and not good (40%).

RESULTS

The characteristics of the respondents in this study included age, gender, generation, vaccination status, and type of vaccine. Respondents in this study were students of the Pharmacy Department of the Medan Polytechnic of the Ministry of Health who met the inclusion criteria of 158 respondents. Based on Table 1, it is known that the majority of

respondents were female; as many as 148 respondents (93.68%) were in the 2021 class; there were 85 respondents (53.79%); all respondents had been vaccinated (100%) and the type of vaccine used was partially The majority of Sinovac respondents are 128 (81.01%).

Table 1. Distribution of Respondent Characteristics

Characteristics	Frequency	Percentage
Gender		
Man	10	6,32
Woman	148	93,68
Year level		
2020	73	46,21
2021	85	53,79
Vaccine type		
Sinovac	128	81,01
Pfizer	7	4,43
Moderna	10	6,32
Astrazeneca	6	3,80
Sinopharm	3	1,90
Unknown	4	2,54

The dominant respondents were female, totaling 148 respondents (93.68%), while the male respondents were only 10 respondents (6.32%). According to data obtained from the Department of Pharmacy of the Medan Polytechnic of the Ministry of Health, the number of female students at grade 1 and level 2 is greater than that of male students. The number of male students in grade 1 is only 11, while the number of female students is 140. And the number of grade 2 male students is only seven, while the number of female students is 103. On the one hand, women are more concerned about their health, so they are more active in seeking information or knowledge about their health. This is in line with research that suggests that women care more about health than men because women are able to obtain more information or knowledge because they often interact and are more active than men.

Based on the results of the research that has been carried out, the results of the respondents' knowledge data regarding the COVID-19 vaccination consist of basic knowledge, the purpose of the COVID-19 vaccination, the type of COVID-19 vaccination, and the criteria and stages of the COVID-19 vaccination as follows:

Table 2. Basic Knowledge Level Frequency Distribution

No.	Basic knowledge	Frequency	Percentage
1.	Good	89	56,32
2.	Pretty good	53	33,55
3.	Not good	16	10,13
4.	Bad	0	0
	Total	**158**	**100**

Based on table 2 above, it can be concluded that the level of basic knowledge about COVID-19 vaccination owned by the majority of respondents is in the good category, namely 89 respondents (56.32%), and a small proportion is included in the poor category, namely 16 respondents (10.13%). The total score obtained by respondents regarding their basic knowledge of the COVID-19 vaccination is 574, so the level of basic knowledge of respondents is 72.65%. The average level of knowledge of students in the Pharmacy Department of the Medan Polytechnic of the Ministry of Health regarding basic knowledge about the COVID-19 vaccination is in the fairly good category.

Table 3. Frequency Distribution of Knowledge Level of Covid-19 Vaccination Purpose

No.	Purpose of vaccination	Frequency	Percentage
1.	Good	145	91,78
2.	Pretty good	6	3,79
3.	Not good	1	0,64
4.	Bad	6	3,79
	Total	**158**	**100**

Based on the data obtained in Table 3, it shows that the level of knowledge regarding the purpose of the COVID-19 vaccination is for the majority of respondents to be in the good category, totaling 145 respondents (91.78%). The average result of the knowledge of students in the Pharmacy Department of the Medan Polytechnic of the Ministry of Health regarding the purpose of the COVID-19 vaccination was 726, so the level of knowledge of respondents regarding the purpose of the COVID-19 vaccination was 91.89%.

Table 4. Frequency Distribution of Knowledge Level of Types of Covid-19 Vaccines

No.	Types of Covid-19 Vaccines	Frequency	Percentage
1.	Good	114	72,15
2.	Pretty good	30	18,99
3.	Not good	7	4,43
4.	Bad	7	4,43
	Total	**158**	**100**

Based on table 4, the distribution of the level of knowledge of the type of COVID-19 vaccine owned by the majority of respondents was included in the good category, namely 114 respondents (72.15%), and a small number were included in the "unfavorable and not good" category, namely 7 respondents (4.43%). The total score obtained by the respondents was 596, so the level of knowledge of the respondents about the type of COVID-19 vaccine was 75.44%. The average level of knowledge of students in the Pharmacy Department of the

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Medan Polytechnic of the Ministry of Health regarding knowledge of the types of COVID-19 vaccines is in the fairly good category.

Table 5. Frequency Distribution of Knowledge Level Criteria and Stages of Covid-19 Vaccination

No.	Criteria and Stages of Covid-19 Vaccination	Frequency	Percentage
1.	Good	112	70,89
2.	Pretty good	26	16,46
3.	Not good	5	3,16
4.	Bad	15	9,49
	Total	**158**	**100**

Based on Table 5, the level of knowledge of the criteria and stages of the COVID-19 vaccination owned by the majority of respondents is included in the good category, namely 112 respondents (70.89%), and a small proportion is included in the poor category, namely 5 respondents (3, 16%). The total score obtained by the respondents was 600. So that the level of knowledge of the respondents about the criteria and stages of the COVID-19 vaccination, namely 74.94%, was included in the fairly good category. The total score obtained by respondents regarding knowledge of the COVID-19 vaccination was 2496. The level of knowledge of students in the Pharmacy Department of the Medan Polytechnic of the Ministry of Health was 78.98% and was included in the good category.

DISCUSSION

Corona virus infection 2019 (COVID-19) is a viral infection caused by SARS-CoV-2 (Hidayah, 2022). Fever (83-98%), weariness or myalgias, a dry cough (76-82%), and shortness of breath (31-55%) are frequent early symptoms. There is currently no specific treatment for COVID-19 (Levani, 2021). The World Health Organization (WHO) has classified COVID-19 a pandemic, but there is no cure, thus efforts to prevent and control the spread of this infection are required (Hidayah, 2022).

Vaccines are biological products that contain antigens in the form of attenuated dead or living microorganisms, still intact or parts of them, or in the form of microorganism toxins that have been processed into toxoids or recombinant proteins, which are added with other substances and, when given to someone, will cause immunity, specifically active against certain diseases (RI 2017). Vaccines help create immunity or can boost the immune system to protect against viral infections without causing harmful side effects. Vaccination against

COVID-19 can protect the body by creating an antibody response in the body without having to get sick from the coronavirus (Ananda, 2021).

Vaccination is the most effective and efficient public health effort in preventing some dangerous infectious diseases. In an effort to deal with the COVID-19 pandemic, COVID-19 vaccination aims to reduce transmission of COVID-19, reduce morbidity and mortality from COVID-19, achieve herd immunity in the community, and protect the community from COVID-19 so that they remain healthy. productive socially and economically (Kemenkes RI, 2021; Triyo, 2021). 'Herd immunity,' also known as 'population immunity,' is the indirect protection from an infectious disease that occurs when a population becomes immune, either by vaccination or from previous infection. WHO believes that obtaining 'herd immunity' through vaccination is preferable to allowing a disease to spread across any segment of the population, which would result in unnecessary cases and deaths (WHO, 2022). Based on the recommendations of WHO and the Indonesian Technical Advisory Group on Immunization (ITAGI), the formation of herd immunity can be achieved with the target of carrying out a minimum vaccination of 70% (Kemenkes RI, 2021).

But even after we design the vaccine's ideal delivery system, there is still one obstacle to clear: acceptance (Wirawan, 2021). The COVID-19 vaccination is anticipated to be accepted by 71.5% of respondents in a global study conducted in July 2020 with 13,000 participants from 19 countries. Nevertheless, this rate varies from under 55% to over 90% in different countries. Unverified information has been widely disseminated in various media resulting a considerable proportion of the population to held conspiracy beliefs surrounding COVID-19 pandemic (Lazarus, 2021). Based on previous study, showed that vaccine acceptance of 60.8%. This indicated considerable impacts of infodemic, represented by conspiracy beliefs, trust in media, and in authoritative sources, toward COVID-19 vaccine acceptance. Effective public health messaging should be conducted concurrent with vaccine rollout to improve acceptance and achieve herd immunity (Wirawan, 2021).

Previous research on the residents of Dukuh Menanggal revealed that the level of knowledge of the respondents regarding the implementation of the vaccine program was relatively good (76–100%) on indicators regarding knowledge of the vaccine program. Knowledge regarding the indications and contraindications for using vaccines is classified as sufficient (57–75%) and insufficient (56%). This can be input for the government to more intensively carry out health dissemination regarding vaccines from person to person or through social media (Febriyanti, 2021).

All respondents in the research have taken the COVID-19 vaccination because students are required to take the vaccination so they can take part in face-to-face learning (Kemendikbud, 2021). The most widely used type of COVID-19 vaccine is Sinovac (81.01%). This is because this type of vaccine is available at the Medan Ministry of Health Polytechnic Clinic. The Medan Ministry of Health Poltekkes Clinic is one of the vaccination centers in Medan City that provides vaccinations for the community, especially for students of the Medan Ministry of Health Poltekkes. Concerning Technical Instructions for Vaccination in the Context of Mitigating the Corona Virus Disease 2019 (Covid-19) Pandemic, 2021 The Government of the Republic of Indonesia officially started vaccination on January 13, 2021, using the Sinovac vaccine. The Central MUI Fatwa Commission has determined that the Sinovac vaccine is holy and halal (MUI, 2021).

Many countries today use Sinovac, which is an inactivated virus vaccine made in China, and two mRNAbased vaccines, Pfizer/BioNtech made in Germany and Sputnik V made in Russia (Delen, 2022). COVID-19 vaccination efforts have been carried out by various countries, including Indonesia. In the process of developing an ideal vaccine to prevent SARS-CoV-2 infection, there are various platforms, namely inactivated virus vaccines, live attenuated virus vaccines, viral vector vaccines, nucleic acid vaccines, virus-like vaccines, and protein subunit vaccines (Kemenkes RI, 2021).

There are seven types of COVID-19 vaccines that will be used in Indonesia, namely Sinovac, Moderna, Biofarma, Sinopharm, Pfizer, Novavax, and AstraZeneca. The six vaccines from the process of importing the country of origin to Indonesia for inspection at the Food and Drug Supervisory Agency (BPOM) have a very short shelf life, so BPOM issues an Emergency Use Authorization (EUA) as a requirement for vaccines to be given directly to the public. In addition, the vaccines used, such as the Sinovax type vaccine in phase III clinical trials, have an efficacy of only 65.3% compared to Turkey, which has an efficacy of up to 91.25%. The administration of the COVID-19 vaccination is carried out in two stages of administration known as the 1st and 2nd doses, with an interval of 14 to 28 days for each dose, which is injected intramuscularly (Febriyanti, 2021; Triyo, 2021).

The knowledge studied is the result of respondents' knowledge regarding basic knowledge, the purpose of the COVID-19 vaccination, the type of vaccine, and the criteria for the stage of the COVID-19 vaccination. Based on the data obtained, it shows that the level of knowledge of the respondents regarding the basic knowledge of the COVID-19 vaccination is mostly in the good category, totaling 89 respondents (56.32%). The results of

the average knowledge of students of the Pharmacy Department of the Medan Polytechnic of the Ministry of Health regarding basic knowledge of the COVID-19 vaccination, namely 574 (72.6%), are in the fairly good category.

Based on the results of the questionnaire answers, many respondents did not know that not all who receive the COVID-19 vaccine will experience fever, pain, or itching at the injection site. Because some people don't have any side effects after taking the COVID-19 vaccination. Not experiencing side effects does not mean that the vaccine is ineffective, but that everyone has a different body response to the vaccine (WHO, 2022). Many respondents also did not know that the availability of vaccines would help handle the COVID-19 pandemic more quickly. This is in line with research, which suggests that if many people in a community have been vaccinated, the pathogen will have difficulty spreading because many people have become immune. The more other people are vaccinated, the less likely it is that people who cannot be vaccinated will be protected from a dangerous virus. This is called herd immunity or group immunity (Islami, 2021)

The level of knowledge of students in the Pharmacy Department of the Medan Polytechnic of the Ministry of Health regarding COVID-19 vaccination is in the good category. This is in line with research, which states that the level of knowledge of students at UIN Alaudin Makassar regarding the COVID-19 vaccination is in the good category among 225 respondents (Islami, 2021). The results of the survey by filling out a questionnaire, which was conducted on March 1–7, 2021, showed 37 respondents from the residents of Dukuh Menanggal, Surabaya City. From the results of this study, it can be concluded that the knowledge and readiness of Dukuh Menanggal residents regarding the COVID-19 vaccine are in the good category. The result is a significance of 0.000 (0.05), so it can be concluded that there is an effect of knowledge on the willingness to vaccinate residents of the Dukuh Menanggal sub-district, Surabaya City (Febriyanti, 2021).

The results of this study are consistent with previous research in China University Student. Based on the Theory of Planned Behavior (TPB) components (attitude, subjective norms, and perceived behavioral control) and expanded components, an online, cross-sectional survey was created to examine students' intention to receive the COVID-19 vaccine (i.e., knowledge about COVID-19, risk perception of COVID-19, and past influenza vaccination behavior). The findings indicated that students' understanding of the COVID-19 vaccination and perception of its risk had a favorable impact on their attitudes toward receiving the vaccine. Also, the intention to receive COVID-19 vaccination was positively

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correlated with students' attitudes toward receiving COVID-19 vaccine and their past influenza vaccination uptake behaviors (Fan et al. 2021).

The Theory of Planned Behavior (TPB) can be used as a practical framework to understand important factors for intention to uptake COVID-19 vaccination. According to the TPB, three core components, comprising attitude, subjective norm, and perceived behavioral control, together shape an individual’s intentions to uptake vaccination. Individuals’ attitudes toward a behavior refers to the degree to which an individual has a favorable or unfavorable evaluation toward a specific behavior. Perceived subjective norm regarding behavior refers to individuals’ perceptions of judgment from significant others (e.g., friends, family, and society members more generally) in engaging in a specific behavior. Perceived behavioral control refers to the confidence toward the likelihood of successfully engaging in a specific behaviour (Fan et al. 2021). Increasing knowledge in the community about the efficacy and safety of the COVID-19 vaccine is expected to increase public awareness and participation in vaccinations at the nearest health service in an effort to overcome the COVID-19 pandemic.

The commitment of all components of society in implementing health protocols is an important step in preventing the spread of COVID-19. Optimizing the COVID-19 educational program is expected to increase public knowledge about the risks and prevention of this disease. The increase in knowledge will increase their positive attitudes and practice (Sondakh et al. 2022). Thus, knowledge is important for a better practice toward COVID-19. It is essential for a health student to have a solid understanding of the COVID-19 immunization. In order to stop the spread of the COVID-19 viral infection in Indonesia, it is desired that this sound information would be shared and used to educate the people about immunizations.

CONCLUSIONS

An overview of the level of student knowledge about COVID-19 vaccination (basic knowledge, purpose of vaccination, type of vaccine, criteria, and stages of vaccination) at the Pharmacy Department of the Ministry of Health Medan's Polytechnic is in the good category (78.98%). It is crucial for a health student to have a clear grasp of the COVID-19 immunization. It is therefore hoped that this sound information will inform and encourage the public to take part in COVID-19 immunization initiatives.

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